# VOLUME 12, NUMBER 1

# SPECIAL ISSUE

1992

# The Seventh European Conference on Clinical Hemorheology Southampton, United Kingdom, 16-19 July 1991 Part I

	rai	
	CONT	ENTS
S. Witte and JF. Stoltz	v	Obituary: Alfred L. Copley
S. Witte and JF. Stoltz	1	Editorial
S. Witte	5	Alfred L. Copley, the Teacher and Founder
B. Blombäck	13	Alfred L. Copley—the scientist and his contributions to our understanding of haemostasis, thrombosis and atherogenesis
		Proceedings of the Seventh European Conference on Clinical Hemorheology, Part I – Editors: O.S. Roath, G.B. Nash, S. Witte
S. Roath	23	Welcome Address
		The Robin Fåhraeus Medal Award Ceremony
T. Di Perri	25	Laudatio: Fåhraeus Awardee John Stuart
J. Stuart	29	The Fåhraeus Award Lecture: Blood rheology: 1991-2001
		The A.L. Copley Lecture Award for Young Investigators in Clinical Hemorheology
S. Roath	43	Introduction
R.A. Black and T.V. How	45	The A.L. Copley Award Lecture: Effect of wall compliance and geometry on flow disturbances in arterial prostheses Plenary Lecture
JL. Wautier	55	Blood Cell-Vessel wall interactions
		Symposium: Aspects and Regulation of Blood Cell/Vessel Wall Interactions
M.G.A. oude Egbrink, G.J. Tangelder, D.W. Slaaf and R.S. Reneman	59	Interactions between platelets, leukocytes and the vessel wall in vivo
C. Fossat, D. Sainty, A.M. Stoppa, M. David, D. Maraninchi and I. Juhan-Vague	67	In vivo cytokines effects on polymorphonuclear cells functions
D. Nolte, H.A. Lehr, M.D. Menger and K. Messmer	83	Pharmacological intervention of postischemic leukocyte-endothelium interaction in striated muscle
		Symposium: White Blood Cells and Ischaemia
K. Ley	93	Leukocyte adhesion - Molecular basis and physiological consequences
		Symposium: Circulatory Effects of Perfluorochemical Blood Substitutes and their Emulsifying Agents
C. Carter, T.C. Fisher, H. Hamai, C.S. Johnson, H.J. Meiselman, G.B. Nash and J. Stuart	109	Haemorheological effects of a nonionic copolymer surfactant (Poloxamer 188)
M.B. Forman, D.A. Ingram and J.J. Murray	121	Attenuation of myocardial reperfusion injury by perfluorochemical emulsions
K.C. Lowe	141	Perfluorochemical blood substitutes: Circulatory and biomedical applications
	157	Announcements
	161	Contents of BIORHEOLOGY Volume 28,

Number 5

# **VOLUME 12. SUPPLEMENT 1**

1992

#### Advances in Hemorheology

#### Contents

A.M. Ehrly

v Preface

R. Schneider

1 Is Hemodilution Effective in the Treatment of Ischemic Stroke?

P. Költringer, W. Langsteger, G. Pierer F. Reisecker and O. Eber 9 Influence of Application Time of a 6% Hyrdoxyethl Starch (200.000/0.6-0.66) on the Hemorheologic Effect on Patients With Cerebrovascular Disease

A. Haass, J. Treib and M. Stoll

17 Hemorheological Parameters of Hydroxyethylstarch 200/0.62 as a Basis of Hemodilution

H. Goslinga, J.H.A. Heuvelmans, E. van der Laan de Vries and V.M.J. Melis 27 Hemodilution and Rehydration in Stroke Patients. A Preliminary Report

E. Ernst

35 Hemodilution for Peripheral Arterial Occlusive Disease

H.G. Höffkes and A.M. Ehrly

41 Optimal Hematocrit in Patients With Intermittent Claudication. Exercise Induced Muscle Tissue Oxygen Pressure After Stepwise Isovolemic Hemodilution

G.B. Nash

57 White Blood Cell Rheology and Atherosclerotic Ischemic Disease

J. Boldt, B. Zickmann and G. Hempelmann

71 Volume Replacement With Hydroxyethylstarch Solution in Cardiac Surgery

W. Kröll, T. Colombo, G. Wolf, H. Ramschak, P. Ferdinand and W.F. List 79 Does 6% Hydroxyethylstarch (HES 200/0.60-0.66) Influence Hemostasis?

W. Langsteger, P. Költringer, G. Pierer and O. Eber 93 The Effect of Rapid Hypervolaemic Hemodilution on Blood Viscoelasticity: Course Observation Over 5 Days

VOLUME 12, NUMBER 2	CONT	1992
	CONT	
		Conference Communications
		Proceedings of the Seventh European Conference on Clinical Hemorheology, Southampton, U.K., 16-19 July 1991—Part II
		Symposium: Hemorheological Aspects of Sickle Cell Disease
F.A. Ferrone	163	Sickle hemoglobin polymerization: The relationship between kinetics and pathophysiology
C. Brugnara	177	K transport and red cell dehydration in sickle and normal erythrocytes
K. Sugihara and R.P. Hebbel	185	Multiple mechanisms of sickle erythrocyte adherence to vascular endothelial cells
D.K. Kaul	191	Microvascular flow behavior of red cells in sickle cell anemia
		Non-Conference Communications
		Review Article
J. Stuart	203	Rheological consequences of sickle-cell dehydration
		Papers
J.J.M.L. Poffman, J.J.R.M. Bonnier and and I. Bartholomeus	217	Hemorheological effects of a nonionic contrast medium: An ex vivo study
A.M. Ehrly and K. Saeger-Lorenz	223	The effect of Hydergine® on the filterability of erythrocytes from hyperosmolar blood
A. El-Gatit, N. Al-Khaja, A. Belboul, G. Rådberg, D. Roberts and G. William-Ollson	229	Effects of Prostaglandin El on oxygen reactive metabolities and blood rheology during cardiopulmonary bypass for cardiac surgery
M. Brockmann, S. Koeppen, R. Maleßa, G. Schwendemann and L. Heilmann	237	Hyperviscosity in pseudotumor cerebri
I. Anadere, Y. Schmitt, H. Schneider and E. Walitza	243	The effect of $\omega$ -3 polyunsaturated fatty acids on hemorheological parameters of patients under chronic hemodialysis treatment
SA. Evans and J.G. Jones	255	Leukocyte filterability and hypoxia
H. Hara, A. Kitajima and Y. Tamao	267	Improvement of red blood cell deformability by a new anti-platelet agent, MCI-9042
Cui Xizhong and Xu Longshao	279	Hemorheologic changes during acute lung injury induced by oleic acid in dogs. I. Hemorheologic changes
A. Mary, C. Bonne and G. Modat	287	Erythrocyte deformability in an in vitro model of hypoxia/reoxygenation – protective effects of superoxide dismutase and catalase
S. Katoh, K. Yamamoto and M. Kitao	297	Fetal crythrocyte deformability in hypoxia during delivery
M. Caswell and J. Stuart	309	Storage of blood samples for measurement of plasma viscosity and erythrocyte sedimentation rate
	317	Abstracts: International Symposium on Hemorheology in Cerebral Vascular Disorders, Shanghai, People's Republic of China, 24-28 June 1991
	339	Contents of BIORHEOLOGY, Volume 28, Number 6

VOLUME 12, NUMBER 3	CONTI	MAY-JUNE 1992
	CONT	Conference Communications
		Proceedings of the Seventh European Conference
		on Clinical Hemorheology, Southampton, U.K., 16-19 July 1991 – Part III
		Symposium: Hemorheological Effects of Contrast Media
D. Lerche and G. Hennicke	341	The effects of different ionic and non-ionic X-ray contrast media on the morphological and rheological properties of human red blood cells
F. Zannad, JM. Idée, M. Nain-dit-Ducret, C. Balut, A. Huntsman, MM. Le Mignon, AM. Donadieu, A. Pikon and D. Doucet	357	Effects of ioxaglate and nonionic contrast media on erythrocytes filtrability and morphology. Review of previous studies and evaluation of clinical relevance
N.H. Strickland, M.W. Rampling, P. Dawson and G. Martin	369	The effects of contrast media on the rheological properties of blood
M.R. Hardeman and P.T. Goedhart	381	Interrelationship of changes in hemorheological parameters induced by low osmolar ratio-contrast media
R. Raininko	393	Stability of contrast media induced red cell aggregates. A review
P. Aspelin	401	Contrast media and red blood cell aggregation – interaction dangerous or harmless from a clinical view. An overview
		Non-Conference Communications Papers
M. Caswell, M.P. Corlett, J. Stuart and B.S. Bull	407	Tests for monitoring the acute-phase response to surgery
C. Bucherer, J. Ladjouzi, C. Lacombe, J.C. Lelièvre, H. Vandewalle, Y. Beuzard and F. Galacteros	415	Effect of deoxygenation on rheological behavior of density separated sickle cell suspensions
J.A. Bhatt, K. Deo, R.R. Puniyani and R. Gupte	427	A comparative study of the haemorheological profile in the third trimester of pregnancy: Normal and with pregnancy induced hypertension
B. Bertram, S. Wolf, O. Arend, K. Schulte, T.W. Pesch, F. Jung, H. Kiesewetter and M. Reim	437	Blood rheology and retinopathy in adult type I diabetes mellitus
G. Caimi, S. Romandini, R. Lo Presti, A. Serra, M. Montana, G. Francavilla and A. Sarno	449	Erythrocyte membrane fluidity during mesoglycan treatment
		Brief Communications
A. Chabanel, J. Klaren, G. Andreu and M. Samama	455	In spite of elevated plasma fibrinogen, red blood cell aggregation is not increased in smokers
Xiao-Ju Zhang and Yi-Ling Zhang	461	Correlation between relative blood viscosity at standardized hematocrit of 0.45 and red cell rigidity in liver cirrhosis with hypersplenism
	465	Abstracts: Tenth Annual Meeting of Deutsche Gesellschaft für Klinische Mikrozirkulation und Hämorheologie, Mainz, Germany, 14-15 November 1991
	491	Abstracts: Third Vienna Workshop on Hemorheology, Vienna, Austria, 12 December 1991
	497	Contents of BIORHEOLOGY, Volume 29, Number 1

VOLUME 12, NUMBER 4

JULY-AUGUST 1992

#### CONTENTS

Cont	erence	('omm	unical	MAN

Proceedings of the Seventh European Conference on Clinical Hemorheology, Southampton, U.K., 16-19 July 1991 - Part IV

#### Symposium: Hemorheology and Exercise

- E. Watts 499 Haematological adaptation to exercise
  - SOS Blood doping
  - 511 Effect of a hydric intake on the rheological properties of blood after a submaximal exercise
    - 521 Hemorheology and exercise: Aspects for PVD
    - 527 Local haemorheological changes and intracellular erythrocyte Ca++ content in exercising ischaemic limb

### Symposium: Epidemiology of Blood Rheology

- 535 Epidemiology of haematocrit, white cell count, red cell aggregation and fibrinogen: The Glasgow MONICA study
- Plasma viscosity and fibrinogen in the Caerphilly and Speedwell studies
- 549 Blood lipids and lipoproteins are main determinants of plasma viscosity: Results from the MONICA-project Augsburg
- Plasma viscosity dependence on proteins and 557 lipoproteins: Results of the Aachen study

#### Non-Conference Communications

### Papers

- Hemorheological changes in obese children and the effect of weight loss
- Blood viscosity pattern in ABO blood groups in hypertension
- 587 Modified (mixed) crythrocyte sedimentation rate in sickle cell anemia
- 593 Correlation between hemorheological parameters and viscoelasticity of thrombus in rats after exposure to carbon monoxide
- Abstracts: Eighth International Congress of 599 Biorheology, Yokohama, Japan, 3-8 August 1992
- 625 Announcement

D.S. Tunstall Pedoe

C. Bucherer, C. Lacombe, J.C. Lelièvre and H. Vandewalle

E. Ernst and T. Saradeth

S. Forconi, M. Guerrini and V. Turchetti

G.D.O. Lowe, A.J. Lee, A. Rumley, W.C.S. Smith and H. Tunstall-Pedoe

P.C. Elwood, J.W.G. Yarnell, P.M. Sweetnam and J.R. O'Brien

W. Koenig, M. Sund, E. Ernst, W. Mraz, V. Hombach and U. Keil

F. Jung, G. Pindur and H. Kiesewetter

A. Craveri, G. Tornaghi, L. Paganardi, R. Ranieri, S. Cietto, S. Scaglioni, R. Bellú and M. Giovannini

R. Ajmani, R.R. Puniyani and V.S. Jaiswal

H. Sabio and V.C. McKie

Huang Yi Min, Zhong Wei, Qian Min Quan and Zhou Rong

### **VOLUME 12. NUMBER 5**

### SEPTEMBER-OCTOBER 1992

#### CONTENTS

Conference Communications

Symposium: Comparative Hemorheology

S.C. Gascoyne and C.M. Hawkey

H. Johnn, C. Phipps, S. Gascoyne, C. Hawkey and M.W. Rampling

R.E. Waugh

H.J. Meiselman, M.A. Castellini and R. Elsner

S. Egginton, A.C. Fisher and G.B. Nash

O.K. Baskurt

S. Forconi, M. Guerrini, R. Cappelli, M. Bicchi, R. Fontani, L. Trabalzini, A. Vattimo, P. Bertelli and L. Burroni

H. Lechner, M. Walzl, B. Walzl and W. Freidl

D. Weill, H. Setiadi, M.P. Wautier, P.J. Guillausseau, F. Lioté and J.L. Wautier

S. Wolf, K. Schulte, O. Arend, W.M. Glöckner, S. Handt, F. Jung and M. Reim

H. Hamai, C. Bucherer, J. Ladjouzi, C. Lacombe, J.C. Lelievre and M. Le Blanc

F. Jung, J. Rahfeld, C. Mrowietz, S. Spitzer, H. Kiesewetter, U. Seyfert, G. Pindur, E. Wenzel, and K. Stocker

S.M. MacRury, M. Small, J. Anderson and

G.D.O. Lowe

M.W. Rampling and G. Martin

D. Norcliffe and B.L. Devi

Proceedings of the Seventh European Conference on Clinical Hemorheology, Southampton, U.K., 16–19 July 1991—Part V

627 Patterns of variation in vertebrate haematology

639 A comparison of the viscometric properties of the blood from a wide range of mammals

649 Red cell deformability in different vertebrate animals

657 Hemorheological behavior of seal blood

677 Comparative studies on thermal sensitivity of haemorheology; use of human and fish red blood cells

680 The dog as a hemorheological model

Poster Session

697 Effects of treatment with the calcium-entry blocker nimodipine on the cerebral blood flow (SPECT) and blood viscosity of patients affected by cerebral chronic vascular insufficiency

Non-Conference Communications Papers

705 H.E.L.P. - A possibility to change the hemorheologic profile in cerebrovascular disease

Pharmacological modulation of monocyte 713 adhesion to endothelial cells

725 Correlation between retinal microcirculation, plasma viscosity and visual function in patients with macroglobulinemia

733 Rheological properties of red blood cell suspensions in fluorocarbon emulsion F-66E (blood substitute) and in each of its components

747 Effect of different anticoagulants on leucocyte adhesivity

Brief Communications

757 Relation of haematological and biochemical variables to red cell deformability in normal individuals

761 Albumin and rouleaux formation

Letter to the Editors-in-Chief

767 Accuracy of the HAAKE falling ball microviscometer

769 Abstracts: Beijing Satellite Symposium of the Eighth International Congress of Biorheology, Beijing, China, 11-13 August 1992

# VOLUME 12, NUMBER 6

# NOVEMBER-DECEMBER 1992

# CONTENTS

S. Witte and JF. Stoltz	785	Editorial
D.E. McMillan	787	Hemorheologic therapy to control diabetic vascular disease
J. Stuart	797	Sickle cell anaemia - Rheology of the steady state and vaso-occlusive crisis
E. Ernst	805	Fibrinogen, a cardiovascular risk factor
C. Dosquet and JL. Wautier	817	Blood monocyte adhesion to vascular endothelial cells. Implication in vascular pathology
Fu-long Liao, Wen Li and Xiao-jie Yin	831	A new hemorheological approach for evaluation of antiplatelet and anticoagulative drugs — Rotational viscometry
R. Bauersachs, R.B. Wenby, C. Pfafferott, P. Whittingstall and H.J. Meiselman	841	Determination of red cell deformation via measurement of light transmission through RBC suspensions under shear
T. Maeda, A.C. Fisher and G.B. Nash	857	Modulation of platelet-induced granulocyte aggregation by pharmacological agents
H. Al-Zahrani, G.D.O. Lowe, J.T. Douglas, R. Cuschieri, J.G. Pollock and W.C.S. Smith	867	Increased fibrin turnover in peripheral arterial disease: Comparison with a population study
O. Ziegler, H. Candiloros, X. Derriennic, S. Muller, M. Donner, JF. Stoltz and P. Drouin	873	Erythrocyte aggregation in diabetes mellitus: Role of plasmatic and membrane factors
H. Schmid-Schönbein and H. Goslinga	883	Review article: The present state of hemodilutional therapies: Potentials and limits of the most potent tool of "clinical hemorheology"
S. Witte	903	On perihemorheology: Some facts and perspectives
Y. Isogai, T. Yokose, S. Ikemoto, T. Maeda, M. Akiyama and K. Kuchiba	935	Platelet size, shape and filterability
G.V.F. Seaman, R.J. Knox, the Late L.J. Jackson and R.L. Swank	947	Comparison of physicochemical and hematological parameters for blood from multiple sclerosis patients and normal subjects
	959	Errata, CH 12(4), pp. 581 and 584
	961	Contents and Author Index for Volume 12, 1992
	971	Contents of Biorheology Volume 29, Numbers 27: